Abstract

TITLE

Are cycle ergometers effective to promote physical activity and physical function among older adults? Short-term effects of a 10-week structured versus need-supportive physical activity program in assisted living facilities.

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ABSTRACT

Introduction

The population of adults over the age of 70 is rapidly growing. A large percentage of this population is not regularly involved in physical activity (PA), even though PA can attenuate the impact of aging. The current study examined the short-term effectiveness of two cycle ergometer programs on PA and physical function in older adults (age ≥70 yr).

Methods

Flemish older adults living in an assisted living facility were motivated to use a cycle ergometer by assigning them either to (1) a structured PA program (STRUC, n=35), which consisted of three times weekly supervised PA sessions, or to (2) a need-supportive PA program (NEED, n=36), including four 1-hour individual contact moments. NEED received individually tailored PA coaching based on the Self-Determination Theory. Participants of both STRUC and NEED received an individualized cycle ergometer program. Results were compared with (3) a control group (CON, n=24) before (pretest) and immediately after (posttest) the 10-week intervention period with respect to self-reported PA, functional performance (modified Physical Performance Test), exercise capacity (6-minute walk test) and lower body strength (knee-extension test).

Results

The study sample consisted of 22 men and 73 women, with a mean age of 82 ± 6 years. Repeated measurement ANOVA showed a significant time-by-group interaction effect with respect to self-reported moderate-intensity PA (min/week). More specifically, moderate-intensity PA significantly increased in both intervention groups from pre- to posttest (STRUC: +41 min/week, NEED: +44 min/week), whereas no changes occurred in CON.

At posttest, participants in STRUC had significantly increased their functional performance (+ 6%) and their 6-minute walk distance (+ 12%) whereas NEED and CON remained stable. The knee-extension strength significantly decreased (- 6%) from pre- to posttest in participants in CON.

Discussion

STRUC was more effective in improving functional performance and exercise capacity. However, this study provides evidence for the short-term effectiveness of a need-supportive PA program on moderate-intensity PA. Considering cost-effectiveness, the limited number of contact moments in NEED might be more efficient for large scale PA promotion in assisted living facilities. Moreover, need-supportive coaching is hypothesized to enhance autonomous motivation, possibly resulting in more long-term engagement in PA.

Key words

Physical activity, cycle ergometer, intervention, assisted living facilities